

Class06

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```
df_grade <- read.csv("~/Desktop/BGGN 213/week3/student_homework.csv", row.names = 1)
df_grade
```

	hw1	hw2	hw3	hw4	hw5
student-1	100	73	100	88	79
student-2	85	64	78	89	78
student-3	83	69	77	100	77
student-4	88	NA	73	100	76
student-5	88	100	75	86	79
student-6	89	78	100	89	77
student-7	89	100	74	87	100
student-8	89	100	76	86	100
student-9	86	100	77	88	77
student-10	89	72	79	NA	76
student-11	82	66	78	84	100
student-12	100	70	75	92	100
student-13	89	100	76	100	80
student-14	85	100	77	89	76
student-15	85	65	76	89	NA
student-16	92	100	74	89	77

student-17	88	63	100	86	78
student-18	91	NA	100	87	100
student-19	91	68	75	86	79
student-20	91	68	76	88	76

```
df_grade[is.na((df_grade))]  
df_grade
```

	hw1	hw2	hw3	hw4	hw5
student-1	100	73	100	88	79
student-2	85	64	78	89	78
student-3	83	69	77	100	77
student-4	88	0	73	100	76
student-5	88	100	75	86	79
student-6	89	78	100	89	77
student-7	89	100	74	87	100
student-8	89	100	76	86	100
student-9	86	100	77	88	77
student-10	89	72	79	0	76
student-11	82	66	78	84	100
student-12	100	70	75	92	100
student-13	89	100	76	100	80
student-14	85	100	77	89	76
student-15	85	65	76	89	0
student-16	92	100	74	89	77
student-17	88	63	100	86	78
student-18	91	0	100	87	100
student-19	91	68	75	86	79
student-20	91	68	76	88	76

Barry's demo

```
#grade <- function(x){  
#x [is.na(x)] <- 0  
#mean( x[-whcih.min(x)] )
```

```
#gradebook <- read.csv("~/Desktop/BGGN 213/week3/student_homework.csv",row.names = 1)  
#head(gradebook)
```

‘apply()’ function `apply(X, MARGIN, FUN, ..., simplify = TRUE)`

```
#results <- apply(gradebook,1,grade)
#results
```

```
#which.max(results)
```

Question 1

```
df_grade["student-1",]
```

```
      hw1 hw2 hw3 hw4 hw5
student-1 100  73 100  88  79
```

```
s1 <- df_grade["student-1",]
s1
```

```
      hw1 hw2 hw3 hw4 hw5
student-1 100  73 100  88  79
```

```
df_grade[1,]
```

```
      hw1 hw2 hw3 hw4 hw5
student-1 100  73 100  88  79
```

```
vec = c()
grade <- function(df_grade) {
  for (i in 1:nrow(df_grade)){
    s <- df_grade[i,]
    average <- (rowSums(s) - min(s))/4

    vec = c(vec,average)
  }
  return(vec)
}
```

```
average_grade <- grade(df_grade)
average_grade
```

```
student-1 student-2 student-3 student-4 student-5 student-6 student-7
      91.75      82.50      84.25      84.25      88.25      89.00      94.00
student-8 student-9 student-10 student-11 student-12 student-13 student-14
      93.75      87.75      79.00      86.00      91.75      92.25      87.75
student-15 student-16 student-17 student-18 student-19 student-20
      78.75      89.50      88.00      94.50      82.75      82.75
```

```
#class(average_grade)
```

Question 2

```
which.max(average_grade)
```

```
student-18
      18
```

Question 3

```
mean_hw <- c(mean(df_grade$hw1),mean(df_grade$hw2),mean(df_grade$hw3),mean(df_grade$hw4),m
mean_hw
```

```
[1] 89.00 72.80 80.80 85.15 79.25
```

```
which.min(mean_hw)
```

```
[1] 2
```

Homework 2 is the hardest

Question 3 - sum

```
sum_hw <- c(sum(df_grade$hw1),sum(df_grade$hw2),sum(df_grade$hw3),sum(df_grade$hw4),sum(df_grade$hw5))
sum_hw
```

```
[1] 1780 1456 1616 1703 1585
```

```
which.min(sum_hw)
```

```
[1] 2
```

```
hw <- apply(df_grade,2,sum,na.rm=TRUE)
hw
```

```
hw1 hw2 hw3 hw4 hw5
1780 1456 1616 1703 1585
```

Question 4

```
cor_5 <- cor(df_grade$hw5,average_grade)
cor_5
```

```
[1] 0.6325982
```

```
apply(df_grade,2,cor,y=average_grade)
```

```
hw1 hw2 hw3 hw4 hw5
0.4250204 0.1767780 0.3042561 0.3810884 0.6325982
```